

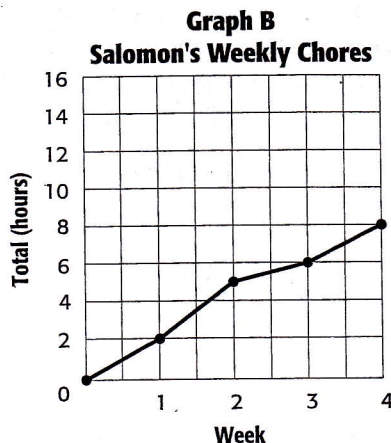
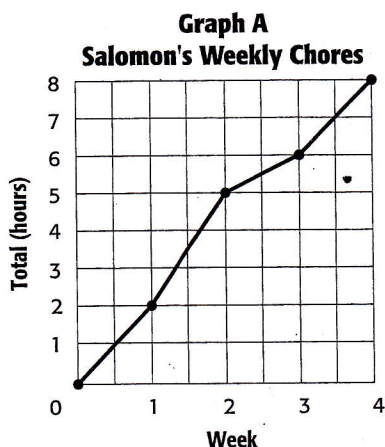
2-8**Study Guide and Intervention****Misleading Statistics**

Graphs can be misleading for many reasons: there is no title, the scale does not include 0; there are no labels on either axis; the intervals on a scale are not equal; or the size of the graphics misrepresents the data.

No title,
No labels
on x or y
No key,
uneven
intervals,

EXAMPLE 1

WEEKLY CHORES The line graphs below show the total hours Salomon spent doing his chores one month. Which graph would be best to use to convince his parents he deserves a raise in his allowance? Explain.



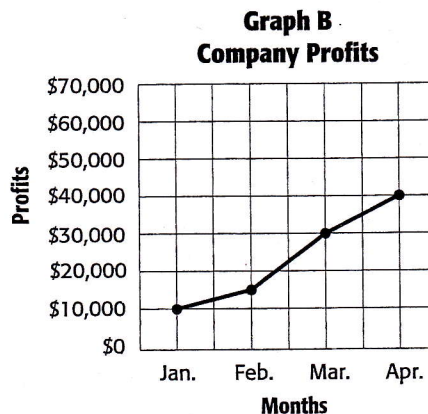
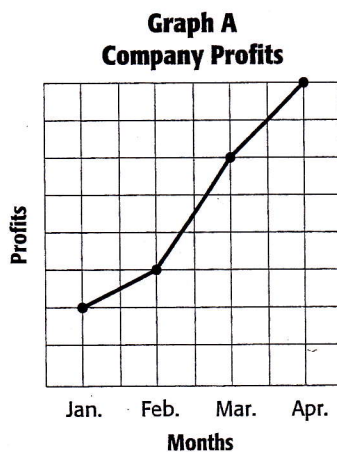
uneven bars,
not starting
at zero,
uneven
graphics

He should use graph A because it makes the total hours seem much larger.

because he used a larger interval in Graph B.

EXERCISES

PROFITS For Exercises 1 and 2, use the graphs below. It shows a company's profits over a four-month period.



1. Which graph would be best to use to convince potential investors to invest in this company? *A - it appears steeper.*

2. Why might the graph be misleading?

There are no labels on the y-axis.

2-8**Enrichment****Choosing a Representative Sample**

Statisticians often use **samples** to represent larger groups. For example, television ratings are based on the opinions of a few people who are surveyed about a program. The people surveyed are just part of the whole group of people who watched the program. When using samples, people taking surveys must make sure that their samples are representative of the larger group in order to ensure that their conclusions are not misleading.

ADVERTISING A company that makes athletic shoes is considering hiring a professional basketball player to appear in their commercials. Before hiring him, they are doing research to see if he is popular with teens. Would they get good survey results from taking a survey about the basketball player from each of these surveys?

1. 200 teens at a basketball game of the basketball player's team

no - the teens at the game will probably like this player already

2. 25 teens at a shopping mall

no - the 25 teens is too small of a sample

3. 500 students at a number of different middle and high schools

yes - the sample is large, and the place is random

Decide whether each location is a good place to find a representative sample for the selected survey. Justify your answer.

4. number of hours of television watched in a month at a shopping mall

yes - the mall will provide a random sample

5. favorite kind of entertainment at a movie theater

no - most people there will favor movies

6. whether families own pets in an apartment complex

no - many apartments don't allow pets

7. taste test of a soft drink at a grocery store

yes - everyone goes to grocery stores

8. favorite teacher in a school cafeteria

yes - everyone eats lunch there

9. teenagers' favorite magazine at five different high schools

yes - gives a large sample